

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Application No. 10/720,667

REMARKS

Review and reconsideration on the merits are requested.

Formalities

Applicant appreciates the Examiner returning PTO/SB/08 filed April 22, 2004 and acknowledging receipt of certified copies of the two priority documents.

Election/Restrictions

The Examiner correctly points out that claims 1-5 are withdrawn from consideration.

Claim Rejections - 35 U.S.C. § 112

Claim 6-17 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite, the Examiner taking the view that the language “in a network manner” is unclear.

Applicant responds by using the language--in a pattern of branching lines-- as shown in Fig. 3 in the present application as filed.

Applicant remains flexible with respect to the exact language used, however, and if the Examiner thinks some other language would be more preferable, the Examiner is requested to call the undersigned so a telephone interview may be conducted.

The Prior Art

U.S. 2002/-153824 (identified as ‘854 in the Action) Chigusa et al (Chigusa)

The Rejection

Claims 6 and 8 (the Examine refers to claims 5 in the Action but that was withdrawn and it is clear that the Examiner means to refer to claim 6) were rejected under 35 U.S.C. § 102(b) as anticipated by Chigusa et al..

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This rejection is respectively traversed.

The Examiner reading of Chigusa is set forth in the Action and will not be repeated here except as necessary to an understanding of Applicant's traversal which is now presented.

Traversal

Amended claim 6 calls for: "A method for producing a network conductor comprising forming a thin film on a substrate; generating microcracks in a pattern of branching lines in said thin film; and filling said microcracks with a conductive material."

Major distinguishing features in the method for producing a network conductor of the claimed invention are found in:

- (1) forming a thin film on a substrate;
- (2) generating microcracks in a pattern of branching lines in said thin film; and
- (3) filling said microcracks with a conductive material.

In contrast, Chigusa discloses a display unit including a face surface and a multi-layered antireflection antistatic film composed of three layers or more formed thereon, the multi-layered antireflection antistatic film having an absorption layer, a conductive layer, and a protective layer in that order from the face surface side, the absorption layer including at least one kind of organic coloring matter, SiO₂, and a silane coupling agent, whose content is seven times as high as the total weight (solid content) of the organic coloring matter and SiO₂ or lower (Abstract; and paragraph [0016] at page 2 of Chigusa).

However, a careful review of Chigusa shows that Chigusa is completely silent regarding any absorption layer which is formed in a pattern of branching lines as set forth in amended claims 6 and 7.

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Specifically, Chigusa teaches surface quality improvement by the use of the silane coupling agent of Chigusa which is added to the Chigusa absorption layer forming solution, which silane coupling agent will suppress the absorption of the conductive layer into the absorption layer under drying conditions. In detail, Chigusa specifically discloses the formation of a **silica sol film** by hydrolyzing an alkoxy silane as the silane coupling agent included in the Chigusa coating film, which becomes a hard SiO₂ coating film upon heating and sintering of the sol to promote condensation, thereby making it possible to eliminate solvent in the conductive layer captured in the absorption layer.

The presence of the silane coupling agent (alkoxy silane) between the organic coloring matter and the SiO₂ will cause the same to bond with each other. See especially [0042] of Chigusa which states:

“In the present invention, for example, the organic functional group portion of silane coupling agent is bonded with the organic coloring matter and the hydrolysis group portion of that reacts with SiO₂.”

Chigusa, however, in no fashion teaches or suggests the generation of any type of microcracks in the hard SiO₂ coating film, though Chigusa may describe the formation of porous SiO₂ in the state of a wet gel or a skeleton structure of porous SiO₂ by the use of a low grade alcohol such as ethanol in place of the Chigusa silane coupling agent. (See especially paragraphs [0038] and [0039] of Chigusa.

Specifically, Applicants respectively submit that “porous SiO₂” or “skeleton structure of porous SiO₂” in no fashion would be considered a pattern of branching lines as claimed in the present application.

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However, as earlier stated, if the Examiner does have some other language that the Examiner feels would even further assist in distinguishing Chigusa, the Examiner is requested to contact the undersigned at the later given local telephone exchange.

Further, Chigusa states that a proper content of the silane coupling agent is effective for suppressing deterioration of conductive characteristics, antireflection characteristic, etc., which is substantially caused by absorption of the conductive layer 11 into the absorption layer 10, i.e., the conductive layer 11 formed on the absorption layer 10 disposed on the face surface 8 of a panel 2 of a Braun tube 1 (see paragraphs [0044] and [0049] in view of paragraph [0041] and Figs. 1 and 2 of Chigusa).

In contrast to Chigusa, the distinguishing features of the invention claimed herein lies in generating microcracks in a pattern of branching lines in a thin film formed on a substrate and filling the microcracks, which extend two-dimensionally into the thin film, with a conductive material such as a metal, a metal oxide, or a conjugated polymer (see page 8, lines 1-7 in view of page 3, line 28 to page 4, line 3 of the specification).

In the method of the present invention, when an underlayer is formed on a substrate as claimed in amended claim 7, a silane coupling agent is added as a substance with bondability to the conductive particles as a binder to increase adhesion between the bondable underlayer and the substrate as it is effective that the underlayer be a bondable underlayer having bondability to the conductive particles. The bondable underlayer is preferably a layer comprising a binder with bondability to the conductive particles; a layer prepared by adding a substance with bondability to the conductive particles, such as inorganic or organic particles, to the binder; a layer prepared by subjecting the binder layer to a surface activating treatment such as a chemical treatment or a

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physical treatment using light or heat energy; or a combination thereof (see amended claim 7; pages 24, lines 1-11; and page 24, line 27 to page 25, line 8 of the specification).

In the present invention, the silane coupling agent contains a silicon atom, which is connected to at least an organic group having a functional group, and a hydrolysable group or a hydroxyl group, where the functional group may be a mercapto group, a primary amino group, a secondary amino group, a (meth)acryloyloxy group, an epoxy group, a vinyl group, a carboxy group, a chlorine group, an isocyanate group, etc.. The organic group having the functional group is not hydrolysable because the organic group is connected to the silicon atom at a carbon atom and the silicon atom may be bonded to an organic group having no functional group, which is preferably a lower alkyl group having a carbon number of 4 or less such as a methyl group, or a phenyl group (see page 25, lines 9-19 of the specification), which features are different from Chigusa in not including alkoxy silane.

Considering the above, Applicants respectfully submit that one of ordinary skill in the art referring to Chigusa would glean no teaching or suggestion of the distinguishing features (1) to (3) above discussed. Accordingly, amended claims 6 and 7 are patentable over Chigusa.

With respect to the remaining claims, Applicants rely upon their above arguments.

Withdrawal of the rejection is requested.

Double Patenting

Claim 6 - 17 are **provisionally** rejected on the grounds of non-statutory obviousness-type doubling patenting as being unpatentable over claims 3-14 of copending Application No. 10/801,577.

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Applicants advise that when one of the present application or applications no. 10/801,577 is in condition for allowance, a terminal disclaimer will be filed.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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